CLAIMS

I/We Claim:

1. A stator core assembly for an alternator of the type having a rotor assembly which presents a rotating, alternating polarity magnetic field, the stator core assembly of the type having an annular core defining an outside diameter, an inside diameter, and a plurality of radially projecting winding slots opening to the inside diameter but terminating short of the outside diameter, the core further defining a lead side and an opposite non-lead side, the stator core assembly further comprising:

a) at least two electrical conductors designated as conductor A and conductor B,

b) the conductors positioned into the winding slots where:

n=number of phases of the stator core assembly,

m=number of the winding slots in the stator core, with the winding slots numbered 1 through m,

L=number of layers of the conductors A and B in the winding slots, wherein a pair of the conductors A and B define one layer,

by the following winding steps:

c) a first lead of conductor A placed into the slot number 1 with the conductor A first lead extending from the stator lead side end,

d) a first lead of the conductor B placed into slot number n+1 with the conductor B first lead extending from the stator lead side end,

e) the conductor A placed into the slot number n+1 thereby forming an end loop on the non-lead side end and lying in the slot number n+1 radially shifted

inwardly from the conductor B, wherein the pair of the conductors A and B lying in the same slot define a layer L,

f) the conductor A placed into the slot number 2n+1 thereby forming an end loop on the lead side,

g) the conductor B shifted into the slot number 2n+1 thereby forming an end loop on the non-lead side and lying in the slot number 2n+1 radially shifted inwardly from the conductor A,

h) the conductors A and B positioned as provided in the preceding c) through g) for all the slots numbered through m+1-n, thereby forming a first layer L, and

i) the conductor A extending from the slot number m+1-n on the lead side end thereby defining a conductor A second lead, and the conductor B extending from the slot number 1 thereby defining a conductor B second lead.

2. A stator core assembly for an alternator according to Claim 1 wherein the conductors have a rectangular cross-sectional shape.

3. A stator core assembly for an alternator according to Claim 1 wherein the conductors have a square cross-sectional shape.

4. A stator core assembly for an alternator according to Claim 1 wherein the conductors have an elliptical cross-sectional shape.

5. A stator core assembly for an alternator according to Claim 1 wherein the conductors have a width of a dimension to be closely received by the winding slots.

6. A stator core assembly for an alternator according to Claim 1 wherein $N \geq 1$.

7. A stator core assembly for an alternator according to Claim 1 wherein $N=6$.

8. A stator core assembly for an alternator according to Claim 1 wherein $L=3$.

9. A stator core assembly for an alternator according to Claim 1 wherein the two conductors A and B are series connected.

10. A stator core assembly for an alternator according to Claim 1 wherein the two conductors A and B are parallel connected.

11. A method of forming a stator core assembly for an alternator of the type having a rotor assembly which presents a rotating, alternating polarity magnetic field, the stator core assembly of the type having an annular core defining an outside diameter, an inside diameter, and a plurality of radially projecting winding slots opening to the inside diameter but terminating short of the outside diameter, the core further defining a lead side and an opposite non-lead side, the method comprising the steps of:

a) providing at least two electrical conductors designated as conductor A and conductor B,

b) winding the conductors into the winding slots where:

n=number of phases of the stator core assembly,

m=number of the winding slots in the stator core, with the winding slots numbered 1 through m,

L=number of layers of the conductors A and B in the winding slots, wherein a pair of the conductors A and B define one layer,

by the following winding steps:

c) the winding including placing a first lead of conductor A into the slot number 1 with the conductor A first lead extending from the stator lead side end,

d) the winding including placing a first lead of the conductor B into slot number n+1 with the conductor B first lead extending from the stator lead side end,

e) the winding including shifting the conductor A to the slot number n+1 thereby forming an end loop on the non-lead side end and lying in the slot number n+1 radially shifted inwardly from the conductor B, wherein the pair of the conductors A and B lying in the same slot define a layer L,

f) the winding including shifting the conductor A to the slot number 2n+1 thereby forming an end loop on the lead side,

g) the winding including shifting the conductor B to the slot number 2n+1 thereby forming an end loop on the non-lead side and lying in the slot number 2n+1 radially shifted inwardly from the conductor A,

h) repeating winding steps c) through g) for all the slots numbered through m+1-n, thereby forming a first layer L,

i) repeating steps a) through d) for additional layers L, and

j) completing the winding by having the conductor A extending from the slot number m+1-n on the lead side end thereby defining a conductor A second lead, and having the conductor B extending from the slot number 1 thereby defining a conductor B second lead.

12. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the conductors are of the type having a rectangular cross-sectional shape.

13. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the conductors are of the type having a square cross-sectional shape.

14. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the provided conductors have a width of a dimension to be closely received by the winding slots.

15. A method of forming a stator core assembly for an alternator according to Claim 11 wherein N=3.

16. A method of forming a stator core assembly for an alternator according to Claim 11 wherein N=6.

17. A method of forming a stator core assembly for an alternator according to Claim 11 wherein L=3.

18. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the two conductors A and B are series connected.

19. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the two conductors A and B are parallel connected.

20. A method of forming a stator core assembly for an alternator according to Claim 11 wherein the two conductors A and B are formed to a shape to be placed into the winding slots before being placed into the winding slots.

21. A method of forming a stator core assembly for an alternator according to Claim 20 wherein the two conductors A and B are interleaved prior to the step of being placed into the winding slots.